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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,376	12/05/2005	Masamichi Morita	Q86778	6763

23373 7590 06/21/2010

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EXAMINER	
HIGGINS, GERARD T	

ART UNIT	PAPER NUMBER
1785	

NOTIFICATION DATE	DELIVERY MODE
06/21/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/528,376	MORITA ET AL.	
	Examiner	Art Unit	
	GERARD T. HIGGINS	1785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 May 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9 and 11-17* is/are pending in the application.

4a) Of the above claim(s) *7-9 and 11-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed 05/03/2010 has been entered. Currently claims 1-5, 7-9, and 11-17 are pending, claims 7-9 and 11-14 are withdrawn, and claims 6, 10, and 18 are cancelled.

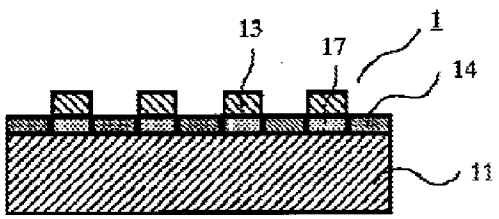
Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-5 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (JP 2002-023356), machine translation included, in view of Matsuo et al. (4,687,707).

With regard to claims 1 and 17, Ishida discloses a material useful for semiconductor devices, displays, LED's etc. [0002] and Figure 5.

【図5】



The substrate **11** is the same type of materials as used by applicants [0013], and there is an alternating line pattern [0031] comprised of a 1st (**14**) and 2nd (**17**) self-organization organic thin films [0017] and [0018], respectively. The 1st self-organization film is comprised of fluoro alkyl silanes such as heptadecafluoro tetrahydro decyltrichlorosilane. A conductive material is then formed above the 2nd self-organizing film by use of a plating method [0033]. The device is anisotropic because the characteristics of the surface will differ in the direction of the alternating line pattern; however, Ishida does not disclose one of the fluorine-containing organic silane compounds of applicants' claims 1 and 17.

Matsuo et al. disclose "Low reflectance transparent material having antisoiling properties" (Title) that can be used on small size precision optical parts (col. 2, lines 10-25). They suggest using perfluoroalkyl group-containing compounds such as silanes (col. 3, line 60 to col. 4, line 9). They recommend using a perfluoroalkylene group containing 2 to 12 carbon atoms and preferably 3 or more carbon atoms (col. 4, lines 10-20). They disclose heptadecafluoro tetrahydro decyltrichlorosilane (col. 4, lines 45-47) as being an equivalent for certain compounds that contain urethane linkages that read on option "(d)" (col. 4, lines 10-20 in combination with col. 5, line 38) and perfluoroisopropyl silanes that read on option "(a)" (col. 5, lines 30-33). Please note that the exemplary urethane compound at col. 5, line 38 may have a perfluoroalkyl group of 3 carbon atoms as suggested at col. 4, lines 10-20.

Since Ishida and Matsuo et al. are drawn to the same perfluoroalkyl silane compounds that are both used for antisoiling, i.e. liquid repellant, purposes; it would

have been obvious to one having ordinary skill in the art at the time the invention was made to have merely substituted the heptadecafluoro tetrahydro decyltrichlorosilane of Ishida for any of the compounds of Matsuo et al. including the perfluoroisopropyl silanes disclosed. The results of such a substitution would have been obvious to one having ordinary skill in the art. The motivation to make the substitution is that all the compounds are known to have low reflectance and good antisoiling properties for optical articles; further, Matsuo et al. recognize that a larger number of carbon atoms in the perfluoroalkyl group is economically unfeasible (col. 4, lines 14-20).

With regard to claim 2, the Examiner deems that the surface free energy difference between the alternating line patterns on the device of Ishida in view of Matsuo et al. intrinsically comprises the values claimed. The Examiner deems this to be so because Ishida teaches at [0004] that it is known in the art that the functionality of the alternating lines changes the surface characteristics of the alternating lines. Surface free energy is a "surface characteristic" as taught by Ishida; furthermore, since the materials of the alternating line pattern are the same as those claimed by applicants, they would intrinsically display the surface free energy difference claimed by applicants.

With regard to claim 3, Ishida teaches at [0031] that the width and pitch of the lines are 20 microns.

With regard to claim 4, Ishida teaches at [0015] that the self-organization layers of the present invention are excellent in forming "uniform films with a molecular level." A uniform film would necessarily have an unevenness of less than 10 nm, especially considering the organic films are on the order of 3 nm thick [0014].

With regard to claim 5, the Examiner deems that the device of Ishida would intrinsically comprise the testing conditions of applicants' claim 5. The Examiner has deems this to be so because the materials that comprise the alternating line pattern of Ishida in view of Matsuo et al. are the same as those claimed by applicants.

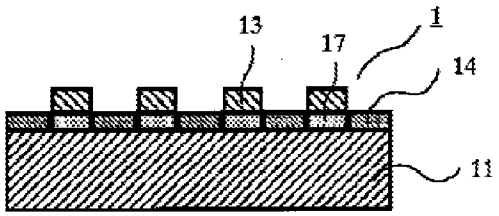
With regard to claim 15, Ishida et al. teach at [0014] and [0015] that a monomolecular film is formed. Both lines of the alternating-line pattern are made of a monomolecular film in order to result in the very thin nature of the organic molecular film, i.e. about 1 or 3 nm.

With regard to claim 16, Ishida teaches at [0035] that a conductive nickel film was plated onto the alternating line pattern to a thickness of 0.1 micron, which reads on the limitations of the claim.

4. Claims 1-5 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida (JP 2002-023356) in view of Katz et al. (EP 1041652) and Matsuo et al. (4,687,707).

With regard to claims 1 and 17, Ishida discloses a material useful for semiconductor devices, displays, LED's etc. [0002] and Figure 5.

【図5】



The substrate **11** is the same type of materials as used by applicants [0013], and there is an alternating line pattern [0031] comprised of a 1st (**14**) and 2nd (**17**) self-organization organic thin films [0017] and [0018], respectively. The 1st self-organization film is comprised of fluoro alkyl silanes such as heptadecafluoro tetrahydro decyltrichlorosilane. A conductive material is then formed above the 2nd self-organizing film by use of a plating method [0033]. The device is anisotropic because the characteristics of the surface will differ in the direction of the alternating line pattern; however, Ishida fails to teach the use of a layer of a semiconductor compound as the functional material or that one of the fluorine-containing organic silane compounds of applicants' claims 1 and 17.

Katz et al. teach using organic semiconductor materials as a functional material for fabricating circuitry (Abstract and [0022] to [0023]). These materials can be bound to fluorinated silane surfaces [0030] and [0031].

Since Ishida and Katz et al. are both drawn to patterning of substrates for circuit technology, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the organic semiconductor materials of Katz et al. as the functional material of Ishida. The results of which would have been entirely predictable to one having ordinary skill in the art of semiconductor manufacture. Specifically, one of ordinary skill would understand that the organic semiconductor material would bind to the 1st self-organizing material (fluoro alkyl silanes) instead of binding to the thiol or amino modified 2nd self-organizing material.

Matsuo et al. disclose "Low reflectance transparent material having antisoiling properties" (Title) that can be used on small size precision optical parts (col. 2, lines 10-25). They suggest using perfluoroalkyl group-containing compounds such as silanes (col. 3, line 60 to col. 4, line 9). They recommend using a perfluoroalkylene group containing 2 to 12 carbon atoms and preferably 3 or more carbon atoms (col. 4, lines 10-20). They disclose heptadecafluoro tetrahydro decyltrichlorosilane (col. 4, lines 45-47) as being an equivalent for certain compounds that contain urethane linkages that read on option “(d)” (col. 4, lines 10-20 in combination with col. 5, line 38) and perfluoroisopropyl silanes that read on option “(a)" (col. 5, lines 30-33). Please note that the exemplary urethane compound at col. 5, line 38 may have a perfluoroalkyl group of 3 carbon atoms as suggested at col. 4, lines 10-20.

Since Ishida and Matsuo et al. are drawn to the same perfluoroalkyl silane compounds that are both used for antisoiling, i.e. liquid repellant, purposes; it would have been obvious to one having ordinary skill in the art at the time the invention was made to have merely substituted the heptadecafluoro tetrahydro decyltrichlorosilane of Ishida for any of the compounds of Matsuo et al. including the perfluoroisopropyl silanes disclosed. The results of such a substitution would have been obvious to one having ordinary skill in the art. The motivation to make the substitution is that all the compounds are known to have low reflectance and good antisoiling properties for optical articles; further, Matsuo et al. recognize that a larger number of carbon atoms in the perfluoroalkyl group is economically unfeasible (col. 4, lines 14-20).

With regard to claim 2, the Examiner deems that the surface free energy difference between the alternating line patterns on the device of Ishida in view of Katz et al. and Matsuo et al. intrinsically comprises the values claimed. The Examiner deems this to be so because Ishida teaches at [0004] that it is known in the art to vary the functionality of the alternating lines to thereby change the surface characteristics of the alternating lines. Surface free energy is a "surface characteristic" as taught by Ishida; furthermore, since the materials of the alternating line pattern are the same as those claimed by applicants, they would intrinsically display the surface free energy difference claimed by applicants.

With regard to claim 3, Ishida teaches at [0031] that the width and pitch of the lines are 20 microns.

With regard to claim 4, Ishida teaches at [0015] that the self-organization layers of the present invention are excellent in forming "uniform films with a molecular level." A uniform film would necessarily have an unevenness of less than 10 nm, especially considering the organic films are on the order of 3 nm thick [0014].

With regard to claim 5, the Examiner deems that the device of Ishida would intrinsically comprise the testing conditions of applicants' claim 5. The Examiner deems this to be so because the materials that comprise the alternating line pattern of Ishida are the same as those claimed by applicants.

With regard to claim 15, Ishida et al. teach at [0014] and [0015] that a monomolecular film is formed. Both lines of the alternating-line pattern are made of a

monomolecular film in order to result in the very thin nature of the organic molecular film, i.e. about 1 or 3 nm.

With regard to claim 16, Ishida teaches at [0035] that a conductive nickel film was plated onto the alternating line pattern to a thickness of 0.1 micron, which reads on the limitations of the claim.

Response to Arguments

5. Applicant's arguments, see Remarks, filed 05/03/2010, with respect to the objection to claim 1, the rejection of claims 1-5 and 15-17 under 35 U.S.C. 112, first paragraph and the rejection of claims 1-5 and 15-17 under 35 U.S.C. 112, second paragraph have been fully considered and are persuasive. The rejections have been withdrawn.

6. Applicant's arguments filed 05/03/2010 have been fully considered but they are not persuasive.

Applicants argue on page 13 of their Remarks that the statement by the Examiner that "heptadecafluoro tetrahydro decyltrichlorosilane is an equivalent for urethane containing linkages" is in error.

The Examiner notes that there might have been some confusion as to how applicants interpreted this statement; however, the principle set forth is entirely proper. Ishida disclose using heptadecafluoro tetrahydro decyltrichlorosilane as their 1st self-organization thin film. Matsuo et al. disclose heptadecafluoro tetrahydro

decyltrichlorosilane at col. 4, lines 45-47 and Matsuo et al. also disclose compounds that read on applicants' option (d) at col. 4, lines 10-20 combined with col. 5, lines 38 and compounds that read on applicants' option (a) at col. 5, lines 30-33. In this way Matsuo et al. disclose that heptadecafluoro tetrahydro decyltrichlorosilane is an equivalent compound for all other compounds in their specification including those that read on applicants' claims.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have merely substituted the heptadecafluoro tetrahydro decyltrichlorosilane of Ishida for any of the compounds of Matsuo et al. including the perfluoroisopropyl silanes disclosed. The results of such a substitution would have been obvious to one having ordinary skill in the art. The motivation to make the substitution is that all the compounds are known to have low reflectance and good antisoiling properties for optical articles; further, Matsuo et al. recognize that a larger number of carbon atoms in the perfluoroalkyl group is economically unfeasible (col. 4, lines 14-20).

Applicants argue that the Matsuo et al. reference does not make a distinction between compounds having a perfluoroalkyl group having 5 or less carbon atoms or having at least 6 carbon atoms.

The Examiner notes that applicants admit that Matsuo et al. teaches compounds containing perfluoroalkyl groups having 5 or less carbon atoms. The Examiner has provided a proper *prima facie* case to use these compounds, which read on the present claims. This argument is unconvincing.

Applicants argue on page 14 that the Examiner does not have a motivation to use the compounds of Matsuo et al. in the device of Ishida; further, they argue that the references are not analogous.

First, the compounds set forth above are recognized as equivalents in Matsuo et al. For at least this reason it would have been obvious to one having ordinary skill in the art to have used any of the antisoiling coating compositions of Matsuo et al. as the 1st self-organization thin film of Ishida.

Second, applicants' are reminded that according to MPEP 2141.01 (a), a reference may be relied on as a basis for rejection of an applicants' invention if it is "reasonably pertinent to the particular problem with which the inventor is concerned." A reasonably pertinent reference is further described as one which "even though it maybe in a different field of endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." Matsuo et al. is, therefore, a reasonably pertinent reference, because it teaches antisoiling compositions utilizing fluorine containing compounds, which is a function especially pertinent to the invention at hand as well as that of Ishida.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 10am-8pm est. (Variable one work-at-home day).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on 571-272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Ruthkosky/
Supervisory Patent Examiner, Art Unit 1785

GERARD T. HIGGINS
Examiner
Art Unit 1785

/G. T. H./
Examiner, Art Unit 1785